इंटरनेट मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

"जानने का अधिकार, जीने का अधिकार"
Mazdoor Kisan Shakti Sangathan
"The Right to Information, The Right to Live"

"पुराने को छोड नये के तरफ"
Jawaharlal Nehru
"Step Out From the Old to the New"

IS 13664 (1993): Polly pallets for bag storage godowns [TED 12: Freight Containers and Pallets]

"ज्ञान से एक नये भारत का निर्माण"
Satyanarayan Gangaram Pitroda
"Invent a New India Using Knowledge"

Act Number 22 of 2005
The Indian Parliament
RIGHT TO INFORMATION

Made Available By
Public.Resource.Org

"ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है"
Bhartṛhari—Nītiśatakam
"Knowledge is such a treasure which cannot be stolen"

BLANK PAGE

BRUTUM FULMEN

IGNORANTIA
JURIS
NON EXCUSAT

PROTECTED BY COPYRIGHT

REAFFIRMED
Nov 2003

IS 13664 : 1993

भारतीय मानक

थैला भंडारण गोदामों के लिए पोलिपैलेट – विशिष्टि

Indian Standard

POLY-PALLETS FOR BAG STORAGE GODOWNS — SPECIFICATION

UDC 621·869·82 : 621·798·151

© BIS 1993

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

March 1993 **Price Group 3**

Pallets Sectional Committee, HMD 11

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Pallets Sectional Committee had been approved by the Heavy Mechanical Engineering Division Council.

This standard has been prepared for enabling replacement of wooden pallets presently in use as dunnage platforms in bags storage godowns.

These pallets are intended for repeated use in bag storage godowns as well as warehouse storage, but not for the purpose of handling by mechanical appliances.

These pallets referred to as poly-pallets, are assemblies of steel reinforced LDPE (low density polyethylene) members.

In the preparation of this standard, the data generated by the actual performance study and field test report on poly-pallets through extensive tests has been analysed and utilized in order to optimise the size, weight, life and cost of these polypallets.

For the guidance for test methods (*see* Note under Table 3) reference may be made to ASTM D732, ASTM D638, ASTM D256, ASTM D570, ASTM D543, ASTM D790 and ASTM D695.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

AMENDMENT NO. 1 APRIL 1997
TO
IS 13664 : 1993 POLY-PALLETS FOR BAG STORAGE GODOWNS — SPECIFICATION

(*Page* 3, *Informal Table under Table* 1) — Substitute '290' *for* '240' as the value of '(*L*)' under 'Member Distances'.

(HMD 12)

Reprography Unit, BIS, New Delhi, India

Indian Standard

POLY-PALLETS FOR BAG STORAGE GODOWNS — SPECIFICATION

1 SCOPE

1.1 This standard specifies the dimensions, requirements of materials and construction and tests for poly-pallets for bag storage godowns.

2 REFERENCES

2.1 The Indian Standards listed below are necessary adjuncts to this standard:

IS No.	*Title*
226 : 1975	Structural steel (standard quality) (*fifth revision*)
3395 : 1984	Low density polyethylene materials for moulding and extrusion (*first revision*)
3971 : 1976	Glossary of terms on pallets (*first revision*)
6219 : 1977	Test code for non-expandable flat pallets (*first revision*)
6760 : 1972	Slotted countersunk head wood screws

3 TERMINOLOGY

3.1 For the purpose of this standard the following special terms and definitions shall apply.

3.1.1 *Top Member*

The LPDE square hollow section member reinforced with mild steel square hollow section used for forming the top deck of the poly-pallet and in contact with the storage bags.

3.1.2 *Bottom Member*

The LDPE solid rail section member forming the bottom stringer of the poly-pallet and in contact with the floor.

3.1.3 *Connecting Member*

The LDPE round hollow section member reinforced with mild steel round used for imparting structural rigidity to the assembled poly-pallet.

3.1.4 *Spacer*

The LDPE round hollow sleeve put on the connecting members for providing equidistant spacing to the bottom members in the assembled poly-pallets.

3.1.5 *End Plug*

The LDPE solid stopper intended for plugging end holes of any hollow member.

3.2 All other terms and definitions as given in IS 3971 : 1976 shall apply.

4 TYPES

4.1 Based on design poly-pallets may be classified as Type A and Type B.

5 DIMENSIONS AND TOLERANCES

5.1 Nominal Assembly Dimensions

The nominal assembly dimensions of the poly-pallets recommended for use shall be as per Table 1.

5.2 Tolerances

A tolerance of ±5 mm shall be permitted on both length as well as width whereas a tolerance of $^{+5}_{-0}$ mm shall be permitted on overall height of assembled poly-pallets.

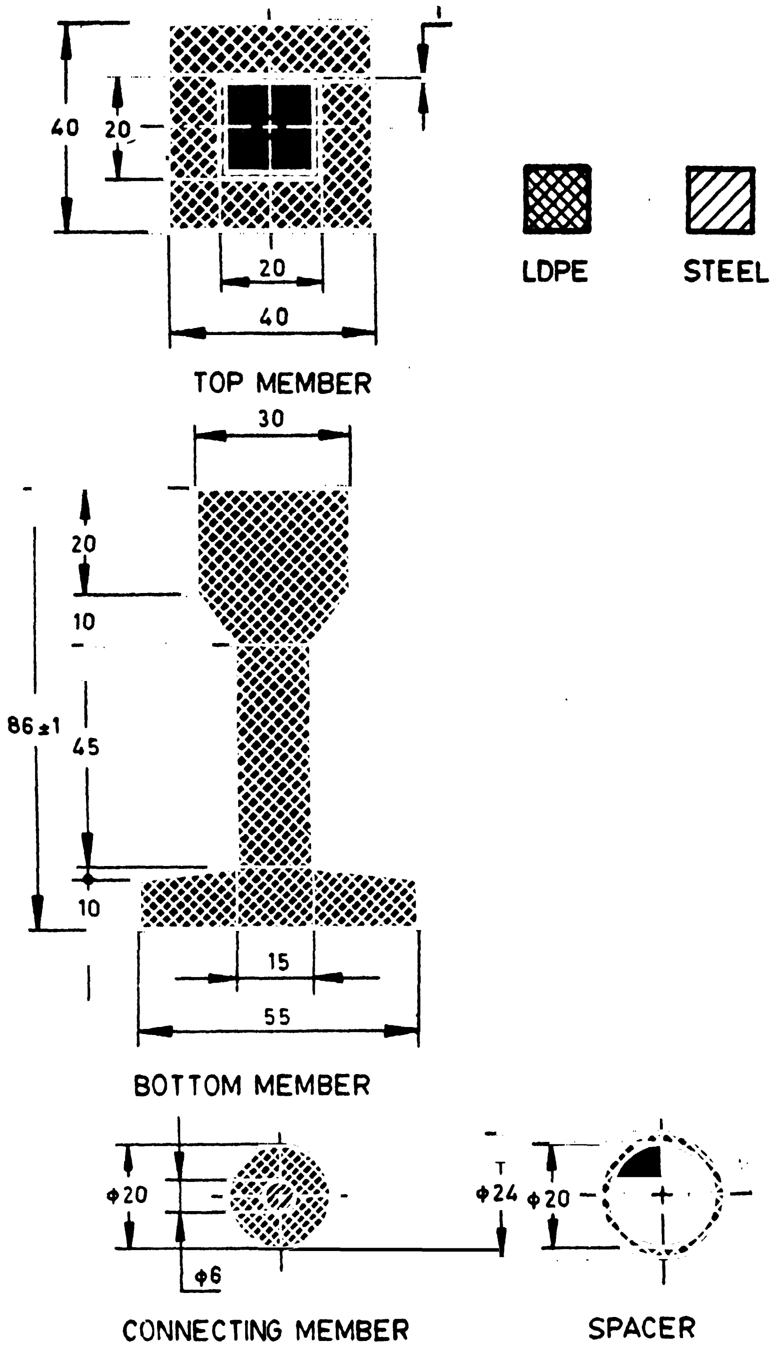
5.3 Dimensions and Cross-Sectional Details of Members

The dimensions and cross sectional details of the various reinforced and unreinforced members of the poly-pallets shall be as follows:

a) *Top Member* — It shall be made up of a 40 mm × 40 mm hollow section of LDPE reinforced with a 20 mm × 20 mm × 1·0 mm hollow section of steel (*see* Fig. 1).

b) *Bottom Member* — It shall be made up of a solid rail section of LDPE (*see* Fig. 1).

c) *Connecting Member* — It shall be made up of a 20 mm diameter hollow section of LDPE reinforced with a 6 mm diameter mild steel bar (*see* Fig. 1).



TOP MEMBER

BOTTOM MEMBER

CONNECTING MEMBER

SPACER

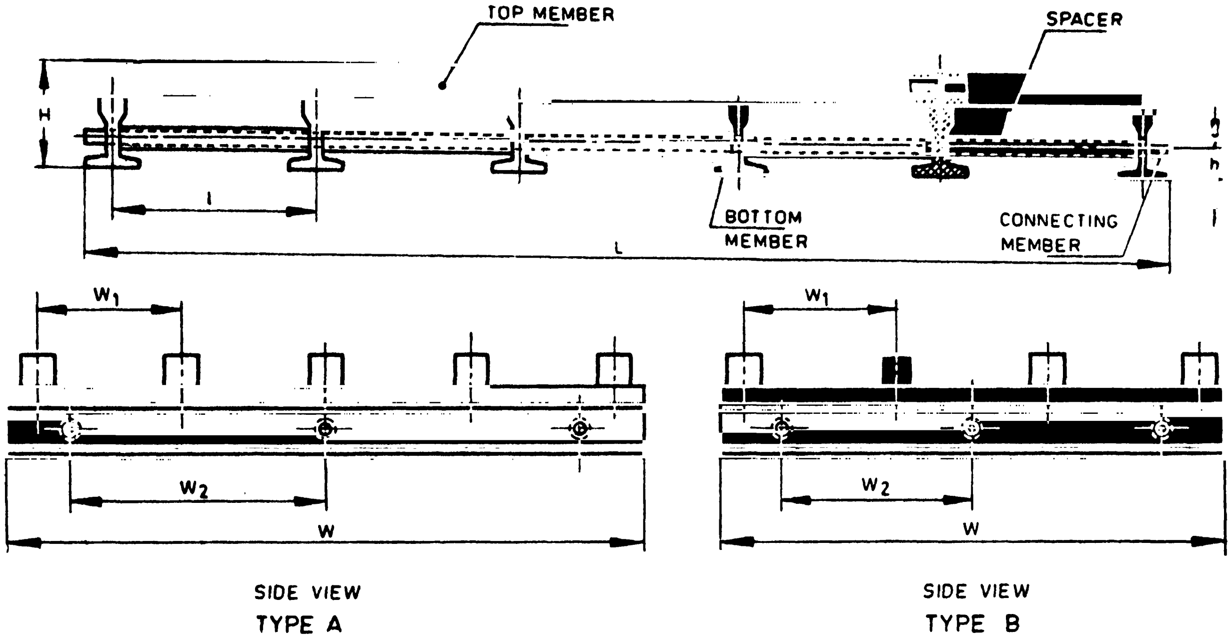
All dimensions in millimetres.

FIG. 1 CROSS-SECTIONAL VIEW OF INDIVIDUAL MEMBERS

Table 1 Assembly Details for Poly-Pallets

(*Clause* 5.1)

All dimensions in millimetres.



Type	Nominal Length	Nominal Width	Overall Height	Member Distances			
	(L)	(W)	(H)	(L)	(H)	(W_1)	(W_2)
A	1 500	760	125	240	36	175	300
B	1 500	615	125	240	36	185	225

NOTE — End holes of the top member are connecting member shall be plugged by end plugs.

Table 2 Tests on Top Members

(*Clause* 9.1.1)

Sl No.	Test	Unit	Test Specimen	Requirement (*Min*)
1	Axial crushing load	kgf	40 x 40 x 40 mm	4 000
2	Cross-sectionl crushing load	kgf	40 x 40 x 40 mm	1 250
3	Ultimate bending load	kgf	300 mm long simply supported at 240 mm	525

NOTE — Rate of loading on Universal Testing Machine 2·8 mm/min.

d) *Spacer* — It shall be made up of a 24 mm diameter hollow section of LDPE with hole diameter of 20 mm to be used as a sleeve on the connecting member for providing equidistant spacing to the bottom members in the assembled poly-pallets (*see* Fig. 1).

NOTE — A 2 percent manufacturing tolerance on the LDPE sections shall be allowed for shrinkage.

6 RATING

6.1 The nominal load rating of the poly-pallet shall be as follows:

Type	*Rated Load* (kg)	*Pay Load* (kg), *Max*
A	4 500	3 000
B	3 500	2 500

7 MATERIAL REQUIREMENTS

7.1 Low Density Poly-Ethylene

It shall conform to classification 13 E 10 of IS 3395 : 1984.

7.2 Steel

a) *Mild Steel Square Hollow Section* — 20 × 20 × 1·0 mm HF SHS

b) *Mild Steel Round* — 6 mm diameter as per IS 226 : 1975.

7.3 Fasteners

Wood screws as per IS 6760 : 1972 of the following designations shall be used for fastening, together the various members of the polypallet:

12 × 60 IS 6760 — Steel

8 CONSTRUCTION DETAILS

8.1 Type

The poly-pallets shall be flat, non-expandable, single deck, general purpose type.

8.2 Stability

When placed on a horizontal flat surface the poly-pallets shall rest evenly and the bearing surface shall be flat and horizontal.

8.3 Assembly

The members of poly-pallets shall be parallel to one another and the joining of the members shall be such that the ends and sides of the poly-pallets form right angles (90 + 1) to one another. Complete surface contact shall be ensured between the top member and bottom members.

8.4 Fastening

Wood screws as per **7.3** shall be used one a each joint. They shall be centrally located so that they do not protrude out through any member and shall be sunk below the level o the top surface. They shall be heat fixed to the members for better grip.

8.5 End Plugs

The end plugs for plugging the end holes of any member shall be made of LDPE as per **7.1** They shall be tight-fitted at both ends of al hollow members and shall not become loose or fall out during handling and usage.

8.6 Weight

The total weight of the assembled and finished poly-pallets shall be as follows:

Type	*Weight* (kg)
A	$22^{+1.5}_{-0}$
B	$19^{+1.5}_{-0}$

9 TESTS

9.1 Type Tests

The following shall constitute the type tests.

9.1.1 *Tests on Top Members*

The top members shall conform to the requirements of Table 2.

9.1.2 *Tests on Bottom Members*

The bottom members shall conform to requirements of Table 3.

9.1.3 *Test on Assembled Poly-Pallets*

The poly-pallets shall be subjected to the following tests in accordance with IS 6219 : 197 in the sequence given below:

a) Top deflection test,

b) Bend test,

c) Compression test,

d) Deformation test, and

e) Drop test.

9.2 Production Routine Tests

Every poly-pallet, after completion shall be tested for the following routine tests at the manufacturers works:

a) Dimensions,
b) Construction,
c) Weight, and
d) Finish.

9.3 Acceptance Test

If the purchaser desires any of the production routine tests to be repeated at the time of purchase then, where agreed to between the purchaser and the manufacturer, the tests may be carried out at the manufacturer's works; alternatively, the tests may be repeated at the place specified by the purchaser provided all arrangements for the tests are made by the purchaser at the specified place.

9.4 Samples for Tests

9.4.1 *Type Tests*

One out of every 500 poly-pallets of the same type shall constitute a type test sample and shall be picked up at random from the stock of assembled poly-pallets that have already been subject to the production routine tests.

9.4.2 *Acceptance Test*

The number of samples shall be as agreed to between the purchaser and the manufacturer.

10 MARKING

10.1 Each poly-pallet shall be clearly marked with the following:

a) Manufacturer's name or identification mark;
b) Month and year of the manufacture; and
c) Batch number.

10.2 Certification Marking

Details available with the Bureau of Indian Standards.

Table 3 Tests on Bottom Members

(*Clause* 9.1.2)

Sl No.	Test	Unit		Requirement (*Min*)
1	Shear strength (*Min*)	kgf/cm^2		130
2	Ultimate tensile strength (*Min*)	kgf/cm^2		115
3	Elongation (*Min*)	%		6
4	Impact strength notched specimen (*Min*)	kgf cm/cm		6
5	Thermal stability (linear expansion, *Max*)	%	24 h at 80 C on 80 mm gauge length	1·5
6	Water absorption (*Max*)	%		0·5
7	Chemical resistance (weight increase, *Max*) to:			
	a) hydrochloric acid	%		0·3
	b) sodium hydrooxide solution	%		0·8
	c) Toluene	%		4·0
8	Bend strength at yield (*Min*)	kgf/cm^2		130
9	Compressive strength at 10 percent deformation (*Min*)	kgf/cm^2		170

NOTE — For Test Methods suitable standard as agreed between supplier and purchaser shall be referred (*see* Foreword).

Standard Mark

The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act, 1986* and the Rules and Regulations made thereunder. The Standard Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control which is devised and supervised by BIS and operated by the producer. Standard marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

Bureau of Indian Standards

BIS is a statutory institution established under the ***Bureau of Indian Standards Act, 1986*** to promote harmonious development of the activities of standardization, marking and quality certification of goods and attending to connected matters in the country.

Copyright

BIS has the copyright of all its publications. No part of these publications may be reproduced in any form without the prior permission in writing of BIS. This does not preclude the free use, in the course of implementing the standard, of necessary details, such as symbols and sizes, type or grade designations. Enquiries relating to copyright be addressed to the Director (Publications), BIS.

Revision of Indian Standards

Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Handbook and 'Standards Monthly Additions'. Comments on this Indian Standard may be sent to BIS giving the following reference:

Doc : No. HMD 11 (107)

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002
Telephones : 331 01 31, 331 13 75

Telegrams : Manaksanstha
(Common to all Offices)

Regional Offices :		Telephone
Central :	Manak Bhavan, 9 Bahadur Shah Zafar Marg NEW DELHI 110002	331 01 31 331 13 75
Eastern :	1/14 C. I. T. Scheme VII M, V. I. P. Road, Maniktola CALCUTTA 700054	37 84 99, 37 85 61 37 86 26, 37 86 62
Northern :	SCO 445-446, Sector 35-C, CHANDIGARH 160036	53 38 43, 53 16 40 53 23 84
Southern :	C. I. T. Campus, IV Cross Road, MADRAS 600113	235 02 16, 235 04 42 235 15 19, 235 23 15
Western :	Manakalaya, E9 MIDC, Marol, Andheri (East) BOMBAY 400093	632 92 95, 632 78 58 632 78 91, 632 78 92

Branches : AHMADABAD. BANGALORE. BHOPAL. BHUBANESHWAR. COIMBATORE. FARIDABAD. GHAZIABAD. GUWAHATI. HYDERABAD. JAIPUR. KANPUR. LUCKNOW. PATNA. THIRUVANANTHAPURAM.

Printed at Printwell Printers, Aligarh, India